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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/821,151	03/29/2001	Joseph R. Summa	81017PCW	4261

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08/25/2006
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EXAMINER

NGUYEN, LUONG TRUNG

ART UNIT	PAPER NUMBER
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2622

DATE MAILED: 08/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/821,151

Applicant(s)

SUMMA, JOSEPH R.

Examiner

LUONG T. NGUYEN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 May 2006 and 2/10/2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. The Affidavit under 37 CFR 1.132 filed on 02/10/2006 is insufficient to overcome the rejection of claim 1 based upon Foster (US 6,643,386) and claims 2-5 based upon Foster (US 6,643,386) in view of Omori et al. (US JP 2000-260968) as set forth in the last Office action because:

The submitted evidence is insufficient to establish **diligence** from a date prior to the date of reduction to practice of Foster (US 6,643,386) and Omori et al. (US JP 2000-260968) references to either a constructive reduction to practice or an actual reduction to practice. Applicant must account for the entire period during which diligence is required and the period during which diligence is required must be accounted for by either affirmative acts or acceptance excuses. See MPEP § 2138.06.

For this reason, applicant's arguments filed on 02/10/2006 have been fully considered but they are not persuasive as to claims 1-5.

2. Applicant's arguments with respect to claims 1-5 filed on 5/30/2006 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

3. Claims 1-5 are objected to because of the following informalities:

Claim 1 (line 11), "centers of each lens" should be changed --center of each lens--.

Claims 2-5 are objected as being dependent on claim 1.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okazaki et al. (US 6,163,407) in view of Foster (US 6,643,386).

Regarding claim 1, Okazawa et al. discloses an image sensor (CCD, figures 1A-2, 5) comprising an array of pixels for collecting incident light and converting the light into an electrical charge (photosensitive portions 12, figures 1A-2, 5, column 8, lines 50-60); a color filter array having a plurality of colored filters positioned adjacent to the pixels for selectively transmitting specific spectral bands of light to the pixels (color filter 16, figures 1A-2, 5, column 1, lines 34-52); a plurality of lenses positioned adjacent to individual pixels (microlenses 26 are positioned adjacent to photosensitive portions 12, figure 5, column 8, lines 50-60), wherein center of each lens is at a uniform spacing (centers of microlenses 37 are arranged in a matrix manner at a uniform spacing in vertical and horizontal direction, figure 4, column 2, lines 29-31).

Okazaki et al. fails to specifically disclose wherein the lenses positioned adjacent a first color of the colored filters are substantially larger in size than lenses adjacent a second color, such that a greater portion of the incident light is focused onto the pixel adjacent the first color of

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the colored filter. However, Foster teaches an image sensor 50 which comprises a plurality of lenses (microlenses 38, 52, 54, figure 6) positioned adjacent to individual pixels wherein the lenses (microlenses 52, figure 6) positioned adjacent a first color of the colored filters are substantially larger in size than lenses (microlenses 38, figure 6) adjacent a second color (figure 6, column 6, lines 1-17). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Okazaki et al. by the teaching of Foster in order to reduce noise in the low-sensitivity colors.

6. Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okazaki et al. (US 6,163,407) in view of Foster (US 6,643,386) further in view of Omori et al. (JP 2000-260968).

Regarding claim 2, Okazaki et al. and Foster fail to specifically disclose the color filters include a blue colored filter which is the first color in the color filter array. However, Foster discloses microlenses 52, which are positioned adjacent to a first color, are larger in size than microlenses 38 (figure 6, column 6, lines 1-17). And Omori et al. teaches that the sizes of the microlenses for low-sensitivity colors (for example, blue and red) larger than that of microlenses for a high-sensitivity color (for example, green), see Solution, and noted that blue is the lowest-sensitivity color among red and green colors. Therefore, the size of microlenses formed on the blue color filters are largest as compared to the size of microlenses formed on the red color filters and green color filters. Therefore, the microlenses 52 of Foster are formed on the blue colored filter. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Okazaki et al. and Foster by the teaching of Omori et al. in order to reduce noise in the low-sensitivity colors (see Solution).

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Regarding claim 3, Foster discloses the colored filters include red and green colored filters either of which is the second color (figure 6).

Regarding claim 4, Okazaki et al. and Foster fail to specifically disclose the color filters include a red colored filter which is the second color. However, Foster discloses microlenses 52, which are positioned adjacent to a first color, are larger in size than microlenses 38 (figure 6, column 6, lines 1-17). And Omori et al. teaches that the sizes of the microlenses for low-sensitivity colors (for example, blue and red) larger than that of microlenses for a high-sensitivity color (for example, green), see Solution, and noted that blue is the lowest-sensitivity color among red and green colors. Therefore, the size of microlenses formed on the blue color filters (first color) are largest as compared to the size of microlenses formed on the red color filters (second color) and green color filters (third color). Therefore, the microlenses 38 of Foster are formed on the red colored filter. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Okazaki et al. and Foster by the teaching of Omori et al. in order to reduce noise in the low-sensitivity colors (see Solution).

Regarding claim 5, Foster discloses the colored filters include a green colored filter which is a third color and which lens adjacent green colored filter is substantially smaller than the red colored filter (the size of microlenses 54 are smallest as compared to the size of microlenses 38 and 52, figure 6, therefore the third color is green).

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **LUONG T. NGUYEN** whose telephone number is (571) 272-7315. The examiner can normally be reached on 7:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **DAVID L. OMETZ** can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LN
08/20/06



LUONG T. NGUYEN
PATENT EXAMINER